Product Value Chain Approaches to Understand and Improve the Livestock Sector

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Value Chain Approaches to Understand and Improve the Livestock sector

1 Background considerations:

Changing research and education paradigm

1. Generation:
   - General research on general problems
   - Obedience to
2. Generation:
   - Combining research and education and
3. Generation:
   - Multiple objectives, interdisciplinarity
   - Participation and interaction
   - Food, nutrition, health
   - Technology, sustainability, safety
   - Orientation on outcome and input

2. Value Chain Approach

2.1 Scope

The value chain describes the full range of actors and activities required

to bring a product or service

from Conception

through Production

and Processing/Transformation

to Delivery

to the final Consumer

and final disposal after use

(Kaplinsky and Morris, 2001)

2. Value Chain Approach

2.1 (cont) The competitiveness of the agro-food business depends on the competitiveness of the respective value chain

→ **systemic competitiveness**

- **Production efficiency** is necessary, but the **quality of linkages** and **support systems** plays a critical role in creating competitiveness
- Entry into **higher value markets** (also global markets) requires an understanding of the requirements and dynamic forces within the value chain
- **Changes in global food systems** towards chain-oriented production are dictated by the consumer:
  - **market pull, no longer production push!**
- Business relations are changing

in Bammann, H. 2007

2. Value Chain Approach

2.2 Concept of a Value Change

- Traces product flows, shows value additions at different stages, identifies key actors and their relationships in the chain
- Identifies enterprises that contribute to production and required institutional support
- Identifies bottlenecks preventing progress
- Provides a framework for sector-specific action
- Identifies strategies to help local enterprises to compete and to improve earning opportunities
- Identifies relevant stakeholders for program planning (also in distant markets)

after Baker, 2006

2. Value Chain Approach

2.2 Concept (cont.)

- From the fractional (external) analytical approach to a systemic participatory value chain analysis
- With a focus on
  - the whole farming system
  - the diversity of product range
  - the Interconnection between products
  - the Interconnection between stages of the chain components

based on Bammann, H. 2007

2. Value Chain Approach

2.3 Improving socio-economic sustainability

Production efficiency	Product quality	Product Safety

- Level of **productivity** and efficiency in production
- **Efficiency** of the chains regarding storage, transport and processing
- **Linkage** between producers, input suppliers, processors, retailers and consumers (information, transaction costs)
- **Options** to improve efficiency in the value chain (emphasis on quality and safety)

2. Value Chain Approach

2.4 Improving environmental sustainability

Strategies for poverty reduction and risk coping in rural areas

- Resource tenure and accessibility
- Management practices for land and water
- Nutrient management (manure)
- System sustainability

2. Value Chain Approach

2.5 Educational Challenges

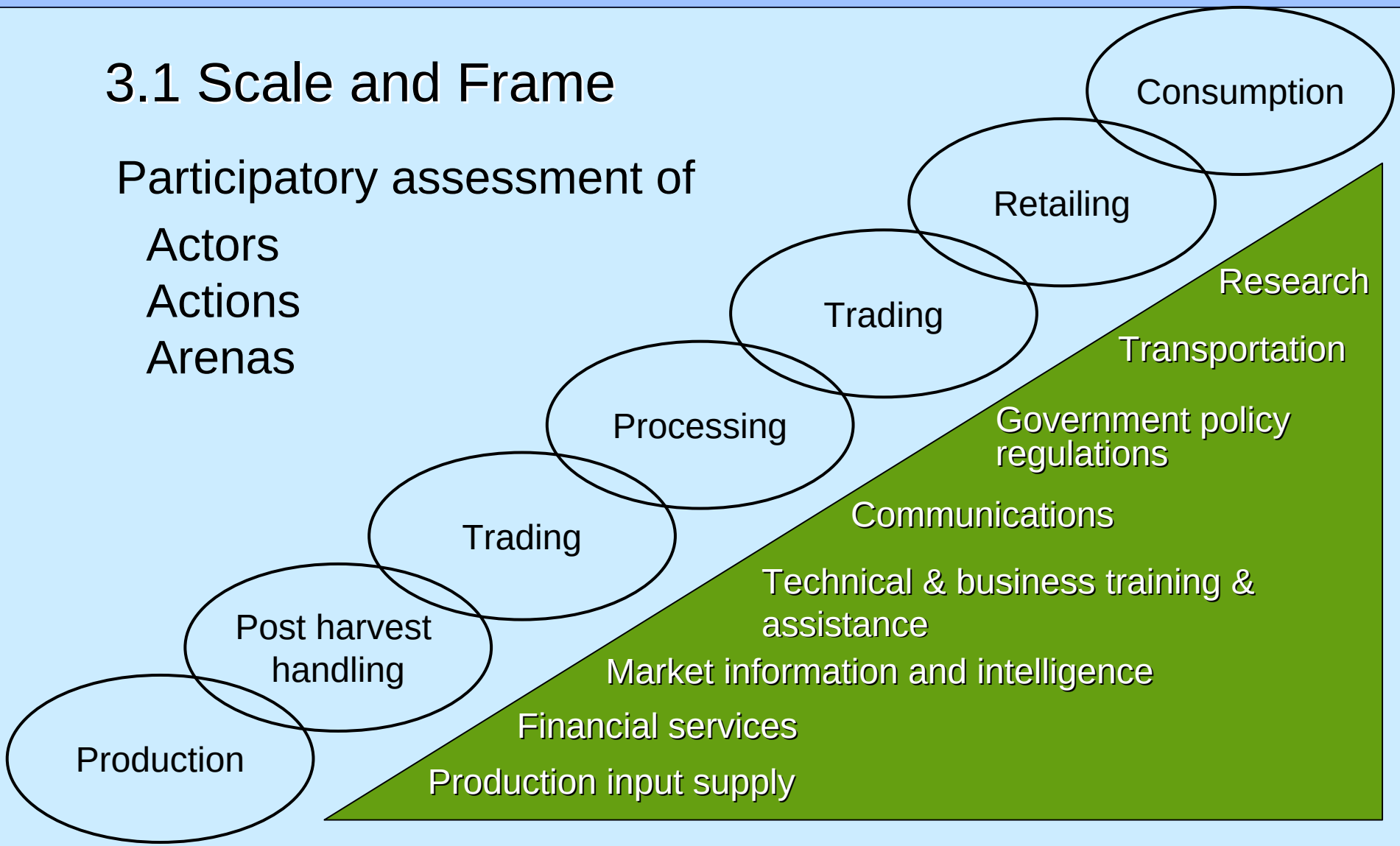
- Focus oriented **interlinkage** of disciplines (projects)
- **Problem oriented** teachings of survey research and statistical methods
- **Interactive student involvement** in problem oriented project implementation (content, process, analysis)
- **Linkage** between education and stakeholder of farming systems or VC
- **Action oriented** social skill development

3. Value Chain Analysis

3.1 Scale and Frame

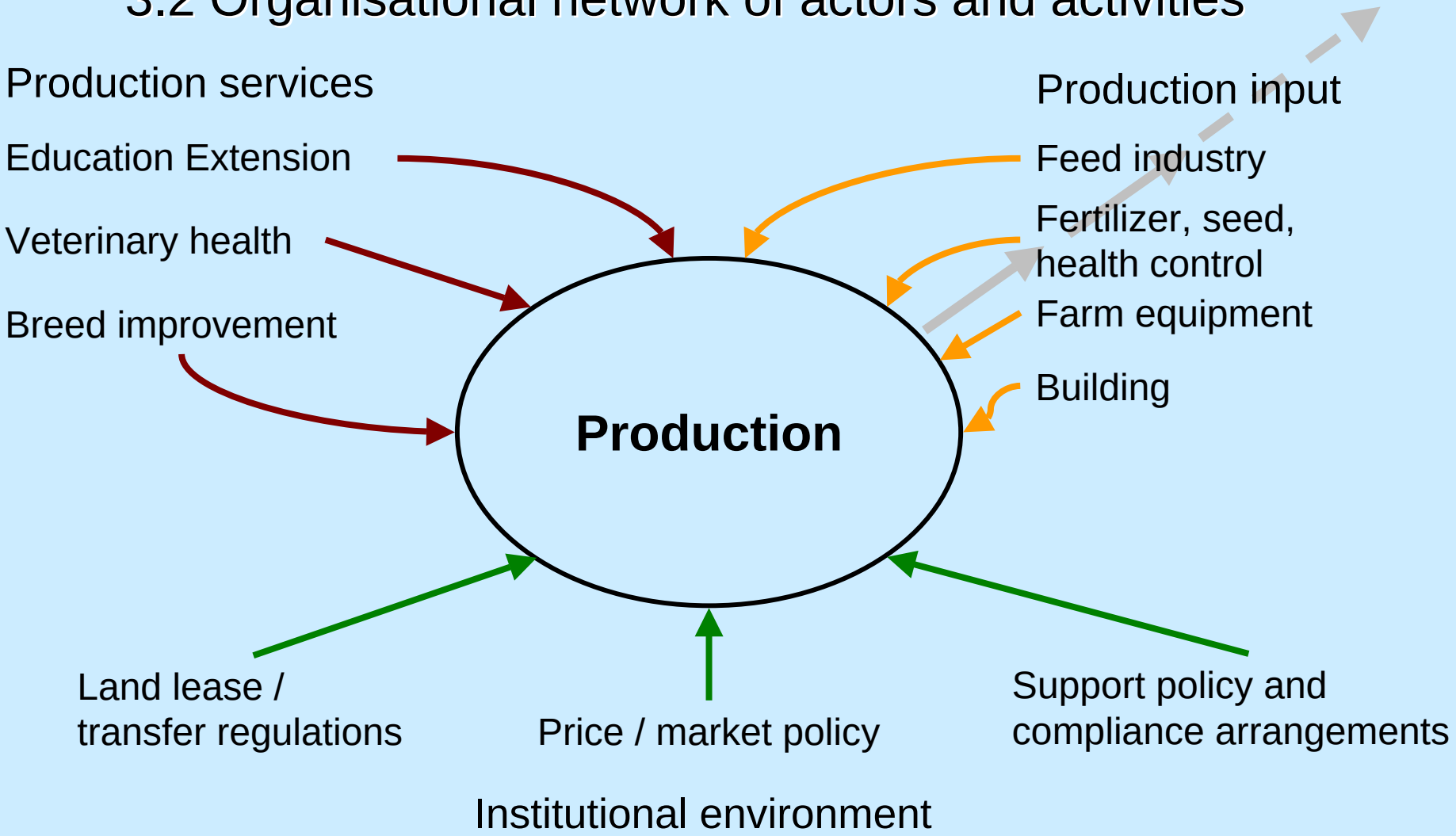
Participatory assessment of

- Actors
- Actions
- Arenas



3. Value Chain Analysis

3.2 Organisational network of actors and activities



3. Value Chain Analysis

3.2 Assessment Components

Productivity / Efficiency

Product quality

Production

Ecological constraints

Input supply (feed techologies, etc.)
Support services (veterinary, breeding etc.)

Human capacity (information, vocational training etc.)

Institutional and legal situation
Physical infrastructure

3. Value Chain Analysis

3.3 Problem Structure

Efficiency

Product safety

Product marketing

Collection + storage technologies

Product quality control

Price policy and payment arrangements

Market information

Transaction costs

Contract arrangements

Institutional and legal situation
Physical infrastructure

3. Value Chain Analysis

3.4 Choices in applying VC-analysis:

- Understanding the existing setting of informal and formal Value chains
- Identification of “action arenas” for in-depth analysis
  - depending on the objectives and goals, e.g.:
    - Product quality and safety
    - Environmental sustainability
    - Process efficiencies at different stages of the chain
    - Transaction costs and linkage efficiencies
    - Institutional efficiency
    - Diversity concerns (pro poor, gender orientation)

4. Methods and Tools in VCA

4.1 Elements:

- Combination of formal and informal survey methods
- Combination of bio-physical, socio-economical and institutional issues
- Partnership – vertical and horizontal scaling
- Integration of disciplines, sectors, scales
- Combining holistic with reductionist approaches

Expanded after Strehlow, H. 2006

4. Methods and Tools in VCA

4.2 Formal (quantitative) and informal (qualitative) survey methods:

- Choice of application depends on
  - Characteristics of problem
  - Required precision, scope of extrapolation, degree of perception
  - Use of information: policy, management, biological processes
  - Degree of participation needed
  - Training objectives to be achieved

Marsland et al. 2001

4. Methods and Tools in VCA

4.2 Formal (quantitative) and informal (qualitative) survey methods:

- Value of information

Formal	**Informal**
Internal validity	Credibility
External validity	Transferability
Reliability	Dependability
Objectivity	Confirmability

4. Methods and Tools in VCA

4.3 Challenges in applying VCA

- Requires “soft” skills → empathy
- → ability to manage conflicts

Philosophy of Science
Communication and Mediation
Participatory methods

Curriculum-Tool box

4. Methods and Tools in VCA

4.4 Philosophy of science:

Positivism	Constructivism
– Single apprehensible reality	– Multiple “constructed realities”
– Reality exist and is driven by laws of cause and effect	– Reality exists and depends on social settings but can never be fully understood or explained

4. Methods and Tools in VCA

4.5 Communication and mediation

Positive collaboration with participators and scientists due to close integration into the research process

⇨ Collaborative learning

- Strong awareness building amongst participants
- Poses a great challenge for the scientists
- Application of learning cycles

4. Methods and Tools in VCA

4.6 Different analytical approaches (examples)

Bio-Econometric analysis

- Stochastic Frontier Approach for measuring efficiency of smallholder Producers i.a. (Aigner *et al*., (1977), Meeusen and van den Broeck (1977)
- Entrepreneurs Profit= Total Receipts -Total expenses- Non-cash Adjustment- Opportunity Cost.

Participatory action research (PAR)

Chambers, R. 1994. Participatory Rural Appraisal (PRA): Analysis of Experience. *World Development* 22(9):1253-1268**.**

Institution Analysis for Development (IAD)

Ostrom, Elinor, Roy Gardner, and James Walker. 1994. *Rules, Games, and Common Pool Resources*. Ann Arbor: The University of Michigan Press.

5. Participatory Action Research

5.1 Characteristics

- PAR attempts to articulate research and social intervention with stakeholder knowledge, know-how and needs
- “Action” is the main criterion to validate any theory; prioritizing practical knowledge
- Objectives of knowledge is guaranteed through the degree to which they were collectively produced, through interpersonal dialogue
- This knowledge returns and is reapplied so that it can generate actions

→ The paradigm of objectives is transformed into reflexivity and dialogical engagement

5. Participatory Action Research

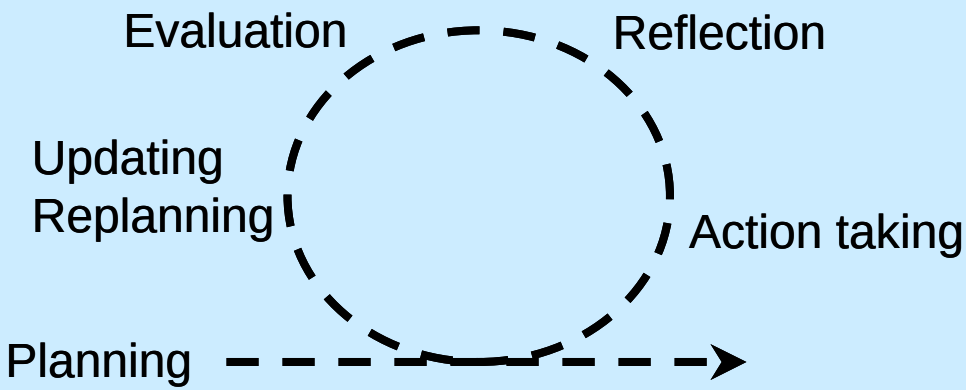
5.2 PAR avoids the traditional relationship between subject (researcher) and object (researched)

- Moves to co-research recognizing that every social subject holds potential for action

- Demands a constant articulation and feedback between the technical / social knowledge (normally from outside) and the local knowledge existing in the sector

5. Participatory Action Research

5.3 Action research demands an iterative research approach



Expanded after Strehlow, H. 2006

5. Participatory Action Research

5.4 Some useful methods:

Semi-structured interviewing

Focus group discussions

Preference ranking

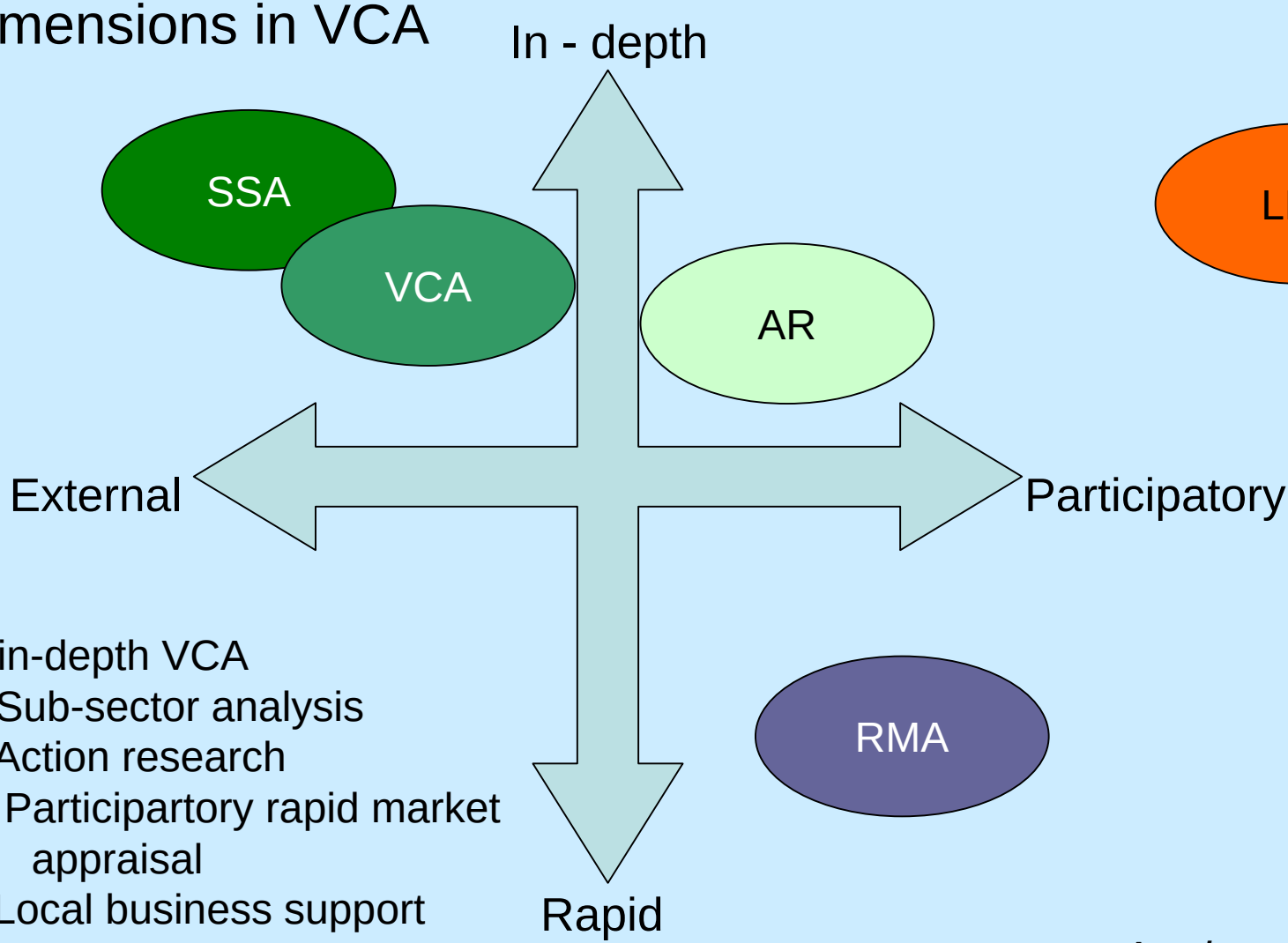
Mapping and modelling

Seasonal and historical diagramming.

http://www.worldbank.org/wbi/sourcebook/sbhome.htm

5. Participatory Action Research

5.4 Dimensions in VCA



VCA = in-depth VCA
SSA = Sub-sector analysis
AR = Action research
RMA = Participartory rapid market appraisal
LBC = Local business support

Arndt et al. 2005

5. Participatory Action Research

5.5 Rapid Market Analysis

Semi-structured informal interviews with key informants and participants at different stages of the value chain

1. To gain a view of how a commoditiy subsector is organised, operates and performs
2. To identify constraints and opportunities
3. To identify specific value chains
4. To prescribe interventions in the organisation, technology and management

6. Institutional Analysis for Development (IAD)

The IAD framework is an appropriate analytical tool

- for dealing with multiple levels of analysis,
- to investigate configural and interactive processes,
- for covering a setting with a wide range of actors, organisations and drivers

Ostrom et al.,2006

6. Institutional Analysis for Development (IAD)

6.1 Concept

- Characteristics of transaction (production and trade)
  - Knowledge demand, technical precondition, resource use, time requirements, specificity, frequency, uncertainty, public acceptance
- Actors
  - Availability of access to resources (Capital, Land/Water, Knowledge) integration into networks, shared values, informal arrangements, relation to external actors
- Property rights
  - Land, water, regulations, distribution, rules, control rights
- Governance structures
  - State administrations, self governance organizations (associations, co-ops), competition mechanisms

Ostrom,2006

6. Institutional Analysis and Development (IAD)

6.2 IAD – Levels of Analysis

- Operational level
  - changes physical variables
- Collective choice
  - changes or creates the rules of an opperational – level situation
- Constitutional choice
  - changes or creates the rules of collective – choice situation
- Meta constitutional
  - shared understanding about how to proceed constitutional choice

Ostrom, E. 2006

6. Institutional Analysis and Development (IAD)

6.3 PRA frameworks for collecting and analysing the institutional environment:

1. Venn diagrams – Organisational mapping

2. Rules, rights and responsibility matrix

3. Time lines to map changes in institutions

4. Stakeholder frameworks

Matsaert, H., DFID, 2002

6. Institutional Analysis and Development (IAD)

6.4 Organizational Mapping (static)

- List agencies organizations, stakeholder
- Identify the function that they do / should do
  - (enabling, service provider, client)

  → this may result in separations of a whole agency into parts by function
- Consider the nature of the relationships between the functions
  - What are they?
  - What should they be?
- Try drawing them in a triangle
- Draw a new diagram

IFAD SL workshop

6. Institutional Analysis and Development (IAD)

6.4 Organizational Mapping (dynamic)

- Include flows of process action and funds with arrows through group discussions with people at different levels

- Shows working relation between organizations
  - People, information, money

- Identifies current practices and norms
  - Flows of critical resources, people and information
  - Helps to understand rules and incentives affecting internal behavior

- Identifies constraints to effective policy implementation through in depth, semi – structured interviews with people at all levels

IFAD SL workshop

6. Institutional Analysis and Development (IAD)

6.5 Analysis of legislation and policy environment

- Literature review
- Key informant interviews
- Time lines developed in group discussions showing key changes and impacts

6. Institutional Analysis and Development (IAD)

6.6 Analysis of Rules

- Identify the rules that most directly affect the structure of situation
- State them in their most general manner
- Study rule configuration in practice
- Set up experiments holding everything constant

6. Institutional Analysis and Development (IAD)

6.7 Stakeholder Approach

- Identification of all relevant institutions in a VC
  - Along the chain continuum
  - With the help of literature reviews and key informants
  - With help of group discussions

Matsaert, H. 2002 DFID

6. Institutional Analysis and Development (IAD)

6.7 Stakeholder approach

Importance/influence matrix

– map out relative importance and influence of stakeholders (individuals, organisations) to decide about inclusion in further analysis, interaction and development,

Conflict/complementarity matrix

– Map arreas of co-operation and conflict between key stakeholders, areas of consensus are the best starting point

Matsaert, H., DFID, 2002

6. Institutional Analysis and Development (IAD)

6.8 Stakeholder analysis : actor linkage matrix

to map linkages, flows of information and needs between key stakeholders

	A Farm	B Extension	C Trader	D Processor	E Input supplier
1 Farmer	+	++			+++
2 Extension				+	+
3 Trader		+		++	
4 Processor		+	+		
5 Input supplier	+	+			

*Information flow from vertical to horizontal axe

Matsaert, H. DFID, 2002

6. Institutional Analysis and Development (IAD)

6.9 Strategic Outputs of Institutional Analyses

1. step: Static and process maps of relevant organizations and institutions

- Static map → snapshot of structures & roles
- Process map → follows the path of money, decisions and information through an organization or product value chain

2. step: Recruitment of relevant institutions into development partnerships

- Counterpart matrix → matches institutions with facts and process phases
- Identifies areas of organizational weakness or areas for strengthening

6. Institutional Analysis and Development (IAD)

6.9 Strategic Outputs of Institutional Analyses

3. step: Enumeration of enabling conditions that must be met for social institutions to work (policy, procedures, processes, practices)

- Coalition for change with private and state institutions

4. step: Monitoring of strategic output through agreed indicators pertaining to enabling conditions

- Policy changes
- Procedural innovation
- Contracts among stakeholder
  - Output – input
  - Information
  - Training and capacity building

http:// Inweb18.worldbank.org/essd

Summary Conclusion

- Complex nature of production systems and product value chain requires concerted alliances
- Interlinkages between R + E and sector stakeholder adds relevance + reliability
- Participatory approaches possess elements of self empowerment and efficiency enhancement
- Interdisciplinarity in education and research implementation is essential
- Need for establishment of a edcuational platform combining the relevant disciplins and methods

Thank you for your attention